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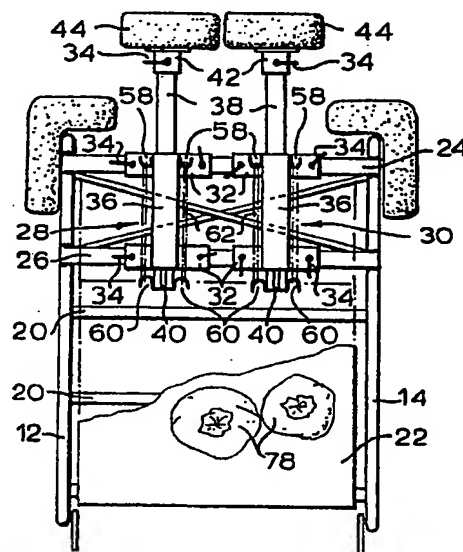
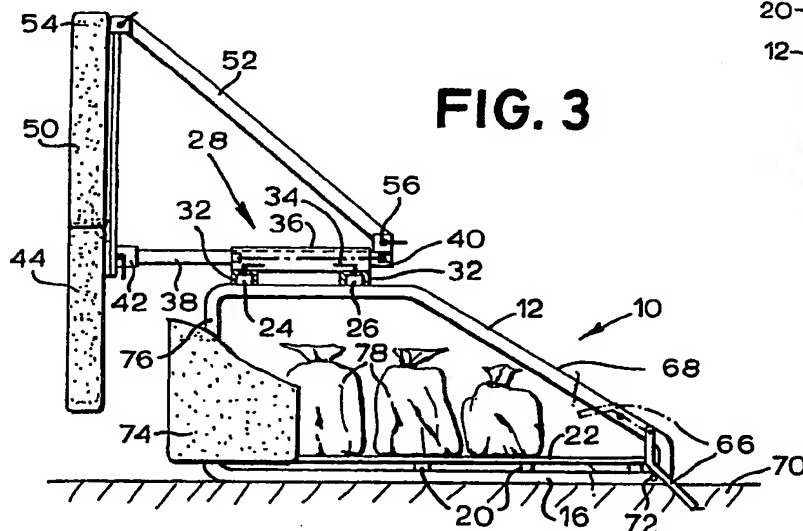
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GB 2118843 A GB 2052272 A

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(54) Rugby training machine

(57) The rugby training machine can be used for scrum, ruck, maul and line-out training and comprises a sledge-type mobile frame (10) having two pad carriers (28, 30) transversely, slideably mounted on two top tubes (24, 26) to permit the spacing between the pads (44) to be adjusted. The variable spacing between the pads enabling the configuration to be changed; from a small spacing for scrum configuration, to little or no spacing for ruck and some maul configurations to a wide spacing for other maul configurations. Additionally, two pivotally mounted "hockey stick" shaped ground engaging spikes (66) are provided so that the training machine can be anchored to the ground for static set scrum training.



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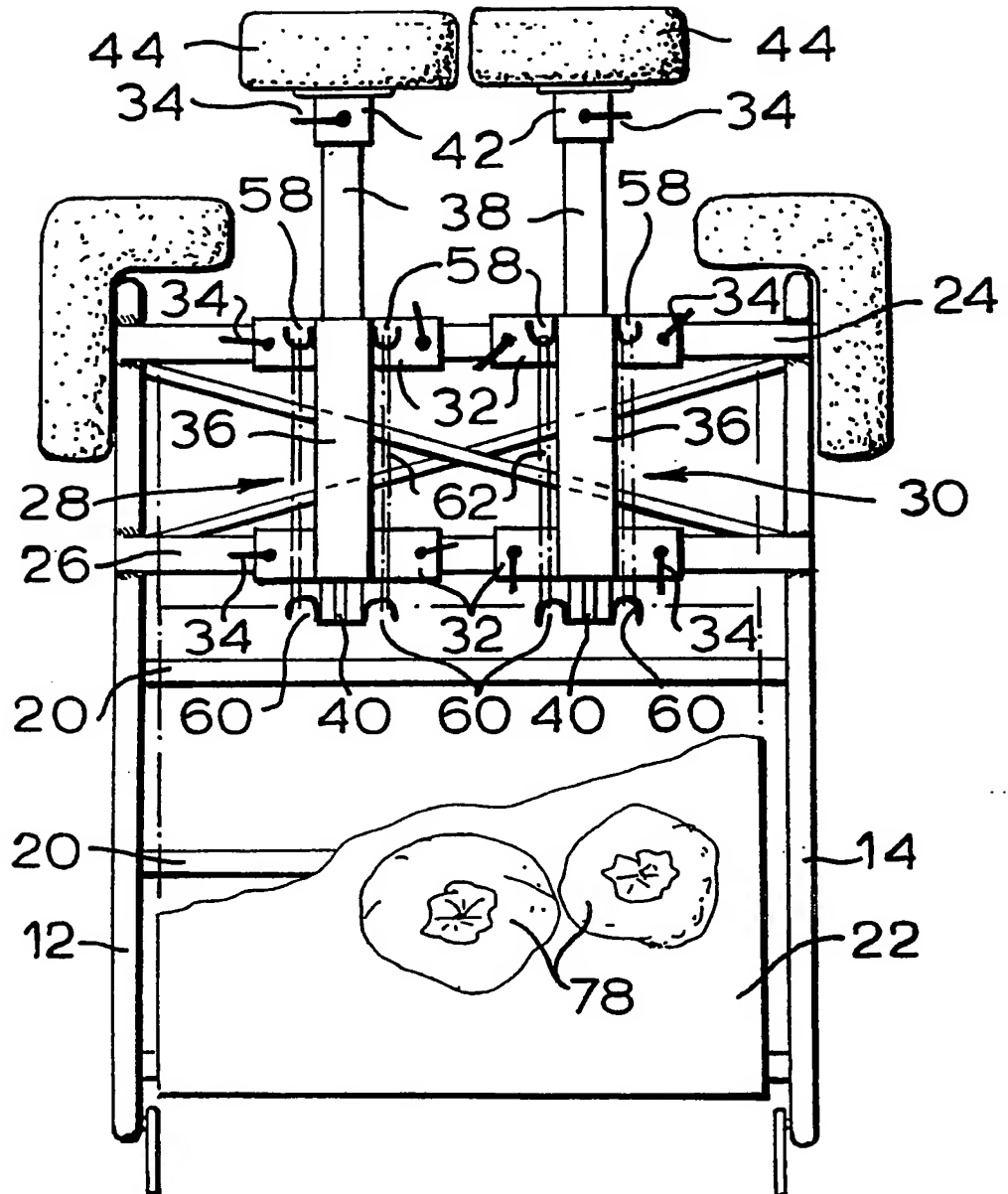


FIG.1

FIG. 5

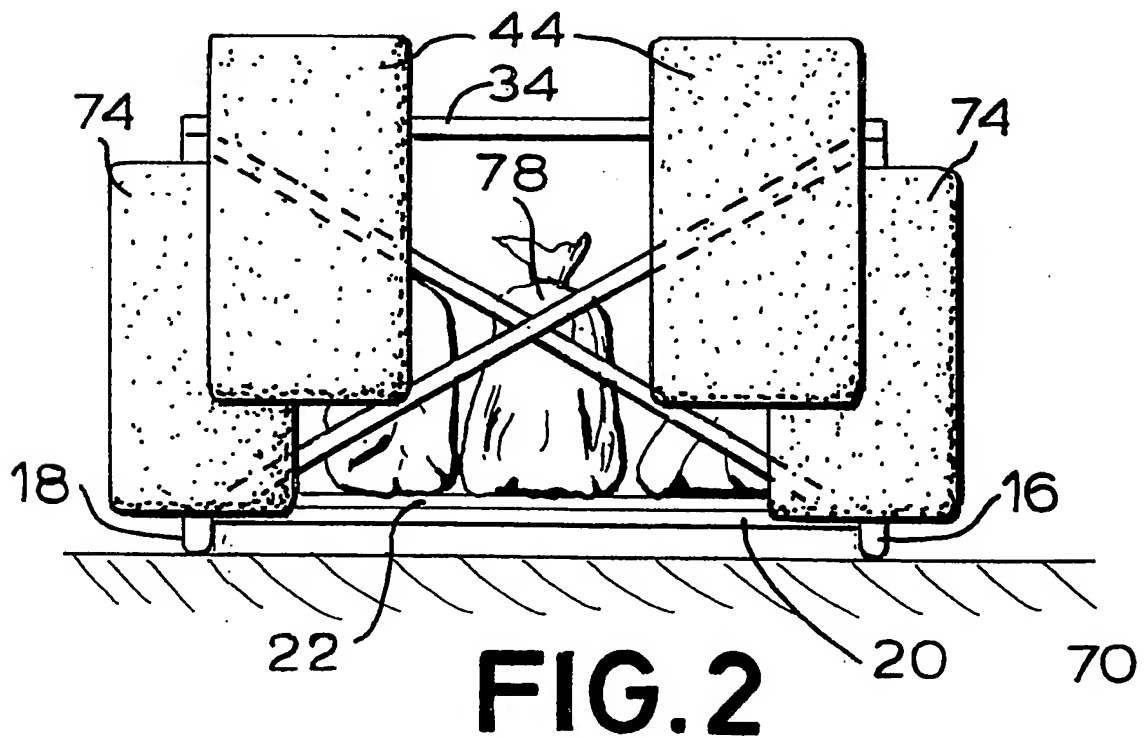
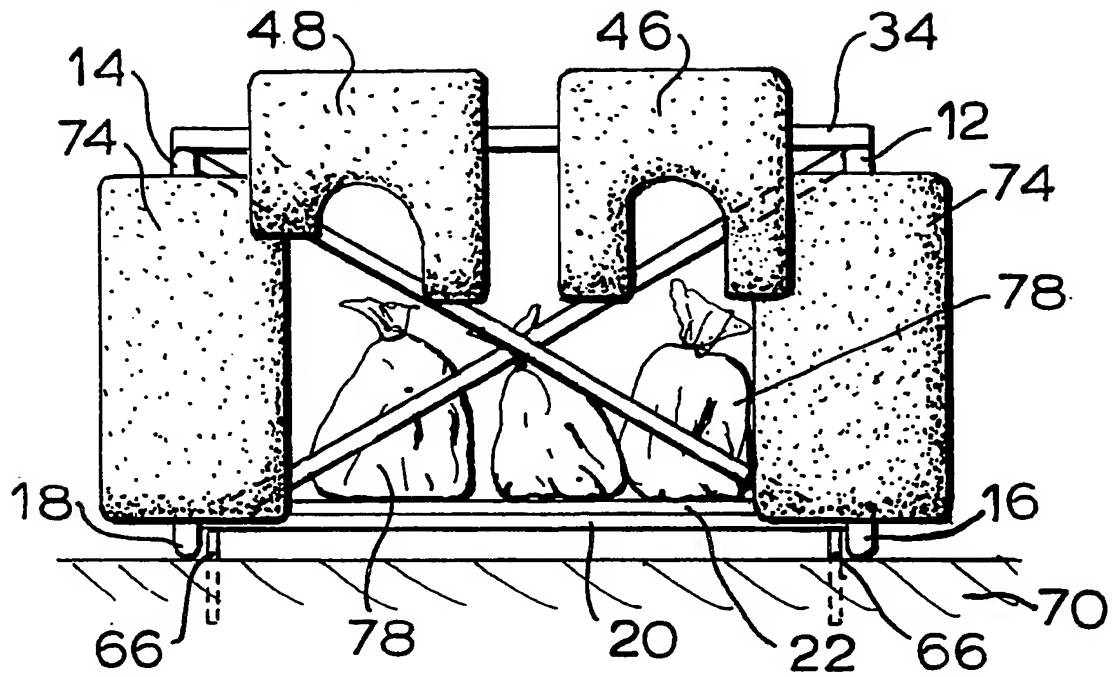
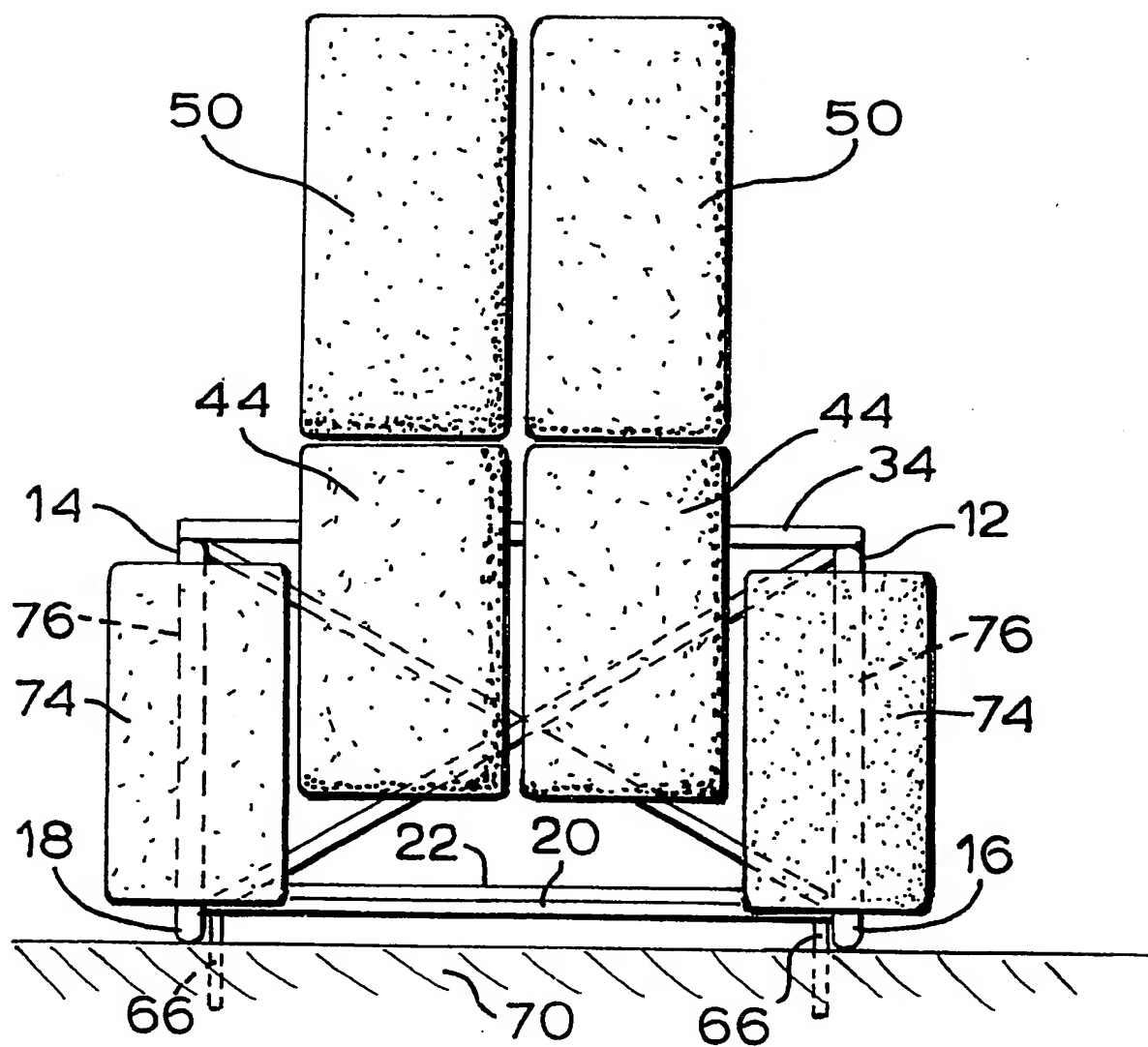


FIG. 2

FIG. 4



RUGBY TRAINING MACHINE

This invention relates to rugby training machines and it particularly relates to such machines that can be used for scrum, ruck, maul and line-out training.

For scrum training a machine has to react as an opposing scrum and duplicate the front row, the pads' shaping and spacing mimicking the loose-head prop, the tight-head prop and the hooker; a set scrum is, at least initially, a static formation for re-starting play and, consequently, a scrum training machine may need to be made immobile. A ruck is formed when the ball is on the ground between one or more players from each team who are on their feet and in contact and a ruck training machine has to mimic the configuration the opposing team may form in the ruck, with probably one or possibly more leading players and, as a ruck occurs during the course of play, it and the training machine has to be mobile. A maul is formed by one or more players from each team on their feet and in physical contact closing around another player who is carrying the ball and a maul training machine has to mimic the possible formation of players in a maul; again a maul occurs during the course of play and a maul training machine has to be mobile. Preferably, a maul training machine should be capable of emulating a rolling maul where the ball is passed between players as they swing or roll within the maul. For line-out training, especially under current rules where players in the same side have to be at least one metre apart, a line-out training machine has to provide a pad at height to mimic an opposing player and, because a line-out is, initially, a static formation a line-out machine may need to be made immobile.

Scrummage training machines are known that offer set scum, ruck and maul and line-out training in one and the same machine; see for example GB 2 118 843 A, where pads shaped and spaced for set scrummage training are provided at one end of

the trainer and further pads shaped and spaced for ruck and maul training are provided at the other end of the machine. In the commercial embodiment of this scrummage machine, the "POWERHOUSE" scrummage machine sold by Rhino Rugby of Westfield Industrial Estate, Tavistock, Devon PL19 9DE, the scrum pads and the ruck and maul pads are detachable and one model offers an extension pad to be fitted above the ruck and maul pads for line-out training.

GB 2 052 272 A describes a rugby scrum and maul training machine comprising a sledge-type mobile frame, a single carrier mounted on the frame for horizontal movement forwards and backwards against spring resistance and a replaceable scrummaging head attachable to the carrier and comprising either a row of four spring loaded shoulder pads for set scrum training or a single oblong pad member for maul training.

It is an object of the present invention to provide a rugby training machine that can readily be configured to provide scrum, ruck or maul training and, for at least one embodiment, line-out training.

According to the present invention, a rugby training machine comprises two or more pads attached side-by-side in a frame, at least one of the pads being movable sideways of the frame to permit the spacing between the pads to be adjusted; whereby the trainer may be configured to as a scrum, or a ruck or a maul training machine. It is the variable spacing between the pads that enables the configuration to be changed; from a small spacing for scrum configuration, to little or no spacing for ruck and some maul configurations to a wide spacing for other maul configurations.

In an embodiment of the present invention, each pad is carried by a pad carrier having a mounting to attach pad carriers side-by-side to the frame, at least one carrier mounting is movable sideways of the frame to permit the

spacing between the pad carriers to be adjusted.

In another embodiment, each pad carrier is provided with replaceable pads shaped for scrum, ruck or maul training.

In a further embodiment, each pad on an arm journalled for forwards and backwards movement with respect to a respective pad carrier and thrust resistors are operatively connected between each pad arm and pad carrier; whereby, in use, movement of a pad and arm towards the carrier and frame and resulting from a thrust applied to the pad is resisted and the pad arm will be returned to an initial position once said thrust has been removed. The thrust resistors may be mechanical springs and/or fluid actuators. In a preferred form, the springs are tension springs formed by loops of shock cord acting between pad arm and pad carrier.

In a still further embodiment, each pad carrier is provided with replaceable pads shaped for line-out training.

In a preferred embodiment, the frame is a sledge provided with means to resist movement over the ground. Such means to resist movement may be ballast weights to be added to the sledge frame and/or spikes by which the frame may be anchored to the ground. In one form the spikes are pivoted to the frame and are arranged such that, in use, each spike can be rotated to contact the ground with subsequent forward motion of the frame forcing the spikes into the ground as they rotate on the frame until a stop is reached; whereupon further forward motion of the trainer is prevented.

The above and other features of the present invention are illustrated, by way of example, by the Drawings, wherein:-

Fig.1 is a plan view of a rugby training machine in maul configuration and in accordance with the present invention;

Fig.2 is a front elevation of the machine of

- Fig.1;
 Fig.3 in a side elevation of the machine of Fig.1, but in line-out configuration;
 Fig.4 is a front elevation of the machine of Fig.3; and
 Fig.5 is a front elevation of a rugby training machine corresponding to the machine of Fig.1, but in scrum configuration.

As shown by the drawings, a rugby training machine comprises a frame 10 having trapezoidally shaped sides 12, 14 of round section tube with the side bottom tubes forming sledge runners 16, 18. The two sledge runners are joined together by four bottom cross tubes 20, that support a platform 22, and two square section top cross tubes 24, 26.

Two pad carriers 28, 30 are transversely, slideably mounted on the two top tubes 24, 26. Each pad carrier has a pair of short tubular cross guides 32 of a complimentary internal square section to slide on one of the frame cross tubes 24 or 26; locking means, such as lever arm bolts 34, are provided in the cross guides to enable the cross guides 32 to be locked in place on the frame cross tubes. The pad carriers 28, 30 also each have a longitudinal, tubular, square sectioned, guide 36, under which the two cross guides 32 are transversely welded, and in each of which is slideably journaled a square section pad arm 38. The forward end of each pad arm protrudes through the respective longitudinal guide 36 and has an end block 40 fixed thereto; the end block is of larger size than longitudinal guide and acts as a stop to prevent the pad arm from being withdrawn from the longitudinal guide.

A variety of pads can be attached to the rear end of each pad arm 38, each pad having a square socket 42 in its front face to fit over the pad arm rear end, lever arm bolts 34 being provided in the pad sockets 42 to lock the pad to the

pad arm. The pads can be simple rectangular ruck and maul pads 44, see Figs 2 and 3, or scrum pads which, as can be seen from Fig.5, comprise a right-hand pad 46 of inverted U shape to mimic the adjacent shoulders of the loose-head prop and hooker of the opposing team and a left-hand pad 48 of inverted L shape to mimic the right shoulder of the tight-head prop of the opposing team. The upper horizontal portion of each pad fits the neck of a respective one of the two training props so that the training front row can interlock with the two pads in much the same way as opposing front rows interlock; the hooker's head fits between the two pads and does not need a horizontal pad part to push against. Line-out pads can either take the form of rectangular vertical extension pads 50, see Figs 3 and 4, attached to the front faces of ruck and maul pads 44 by lever arm bolts 34, or of specifically shaped elongate replacement pads (not shown). In either case a brace 52 is bolted between the top 54 of each line-out pad 50 and a flange 56 on the pad arm stop blocks 40.

Rearward facing hooks 58 are welded to either side of the rear end of each longitudinal guide 36 and similar forward facing hooks 60 are welded to either side of each pad arm stop block 40. Loops 62 of rubber shock cord are attached between pairs of away facing hooks 58, 60 on each side of each guide 36. The shock cord loops 62, shown in dotted line in Fig. 1, form tension springs that oppose forwards movement of the pad arms relative to the longitudinal guides; the shock cord springs form resistors to thrust applied to the pads. The amount of resistance required depends upon the age and size of the trainees and the type of training, but the springs can readily be changed; generally scrum training requires more resistance than ruck, maul or line-out training.

Spikes 66 are pivoted to the front down tube 68 at each side of the frame; the spikes are of "hockey stick" shape and are arranged so that, when pivoted forwards from a rest position shown in dotted line, the spike ends will rest on the

ground 70 until the trainer is pushed forwards; whereupon the spikes will be forced into the ground and the trainer will come to a halt as the spikes rotate against stops 72 provided on the runners 16, 18. The trainer has to be pulled backwards to remove the spikes.

A detachable, L-section static pads 74 is attached, such as by anti-loose bolts or pins, about the rear upright tube 76 at each side of the frame. These static pads are to protect players when using the trainer, especially under mobile conditions.

In use for ruck and maul training:-

ruck and maul pads 44 are fitted to the pad arms 38, the sideways separation between the pads is adjusted to suit the form of training, the pads may be close together for general ruck and maul training (as shown in Figs 1 and 4) or separated for loose ruck (as shown in exaggerated form in Fig.2), ballast (in the form of bags 78 of sand or the like) is added to the front of platform 22 and increases the sledge's resistance to movement over the ground, the number of shock cord rings is adjusted and is generally a small number for minimal resistance, and the spikes are rotated to their rest position (as the trainer has to be mobile).

The two ruck and maul pads, even when close together, more closely mimic the opposing team because the arrangement allows for relative movement between the two pads, as opposed to a single pad, and this simulates moving opposing players.

In use for set scrum training:-

scrum pads 46, 48 are fitted to the pad arms 38, the sideways separation between the pads is adjusted to mimic an opposing front row of given size (see Fig. 5), ballast 78 is added to the rear of platform 22 (to

counter upwards movement of the pads),
the number of shock cord rings is adjusted and is
generally a large number for substantial resistance,
and

the spikes 66 are driven into the ground.

The trainer can thus be used in known manner for set scrum training. In the illustrated embodiment, the stroke of the pad arms in the pad carriers is approximately 60 cm, double the stroke of known scrum trainers. The illustrated trainer is light and depends upon ballast and the spikes for stability for scrum training and the extra long stroke enables several scrum training features to be performed sequentially on a static trainer; for example an 8 man shove.

For line-out training:-

A line-out extension pad 50 is fitted above and to each ruck and maul pad 44 and the braces 52 bolted between the pad tops and the pad arm stop blocks so that the whole assembly can slide to and fro within the longitudinal guides 36,
the sideways separation between the pads is adjusted to suit a given set separation between jumpers for the opposing line-out,
ballast weights 78 are added to the front of the platform to counterbalance the weight of the extension pads and to give extra stability,
the number of shock cord loops is adjusted so give a small resistance, a opposing player in a line-out cannot offer much resistance whilst in the air, and
the trainer is usually left mobile so that loose mauls following a line-out throw in can be practised.

The trainer hereinabove described has been designed to be an inexpensive, multi-use and effective rugby trainer particularly suited to young players. The principal of side-ways adjustable pad carriers can readily be applied to other training machines, for example the aforementioned "POWERHOUSE"

scrummage machine.

Although the rugby trainer has been described as having two pad carriers and associated parts, there are circumstances where a third carrier and parts might be advantageous; especially for some forms of maul and line-out.

Also, the shock cord loops, mechanical tension springs, may be replaced or supplemented by fluid actuators in the form of pneumatic or hydraulic cylinders in known manner.

Advantageously, the trainer can be made of light tubular steel and be readily assembled/dissassembled. The side frames and cross-pieces can be bolted together so that the trainer can be dispatched in a dissassembled "flat pack", typically $\frac{1}{2}$ cubic metre, instead of the two cubic metres occupied by a known trainer.

CLAIMS:

1. A rugby training machine comprising two or more pads attached side-by-side to a frame, wherein at least one of the pads is movable sideways of the frame to permit the spacing between the pads to be adjusted; whereby the trainer may be configured to as a scrum, or a ruck or a maul training machine.
2. A rugby training machine as claimed in claim 1, wherein each pad is carried by a pad carrier having a mounting for attachment to the frame, at least one of the carrier mountings being movable sideways of the frame to permit the spacing between the pad carriers to be adjusted.
3. A rugby training machine as claimed in claim 2 and provided with replaceable pads shaped for scrum, ruck or maul training.
4. A rugby training machine as claimed in claim 2 or claim 3, wherein each pad is on an arm journalled for forwards and backwards movement with respect to a respective pad carrier and thrust resistors are operatively connected between each pad arm and pad carrier; whereby, in use, movement of a pad and arm towards the carrier and frame and resulting from a thrust applied to the pad is resisted and the pad arm will be returned to an initial position once said thrust has been removed.
5. A rugby training machine as claimed in claim 4, wherein the thrust resistors are mechanical springs and/or fluid actuators.
6. A rugby training machine as claimed in claim 5, wherein the thrust resistors are tension springs formed by loops of shock cord between pad arm and pad carrier.
7. A rugby training machine as claimed in any of claims 3 to

6 and provided with replaceable pads shaped for line-out training.

8. A rugby training machine as claimed in claim 7, wherein support braces are attached between the top of each line-out pad and the frame.
9. A rugby training machine as claimed in claims 4 and 8, wherein the bottom of each brace is attached to a respective pad arm.
10. A rugby training machine as claimed in any of the preceding claims, wherein the frame is a sledge provided with means to resist movement over the ground.
11. A rugby training machine as claimed in claim 10, wherein the sledge frame has a platform for ballast weights.
12. A rugby training machine as claimed in claim 10 or claim 11, wherein the frame is provided with spikes by which it may be anchored to the ground.
13. A rugby training machine as claimed in claim 12, wherein the spikes are pivoted to the frame and are arranged such that, in use, each spike can be rotated to contact the ground with subsequent forward motion of the frame forcing the spikes into the ground and continuing to rotate on the frame until a stop is reached; whereupon further forward motion of the trainer is prevented.
14. A rugby training machine substantially as described with reference to the Drawings.
15. Pads for a rugby training machine as claimed in any of the preceding claims and substantially as described with reference to or as shown by Fig.5, or Figs 1 and 2, or Figs 3 and 4 of the Drawings.

Patents Act 1977 Examiner's report to the Comptroller under Section 17 - II - (The Search report)	Application number GB 9305802.2
Relevant Technical Fields (i) UK Cl (Ed.M) A6D; A6M (MBL) (ii) Int Cl (Ed.5) A63B Databases (see below) (i) UK Patent Office collections of GB, EP, WO and US patent specifications. (ii) ONLINE DATABASE: WPI	Search Examiner R HOWE
	Date of completion of Search 19 APRIL 1994
	Documents considered relevant following a search in respect of Claims :- 1-14

Categories of documents

X: Document indicating lack of novelty or of inventive step.	P: Document published on or after the declared priority date but before the filing date of the present application.
Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.	E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.
A: Document indicating technological background and/or state of the art.	&: Member of the same patent family; corresponding document.

Category	Identity of document and relevant passages	Relevant to claim(s)
X,Y	GB 2118843 A (FRANCIS) See page 1 lines 40-41	X: 1-3 Y: 4-6, 10
Y	GB 2052272 A (MOORE) See Figure 2	4-6, 10

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